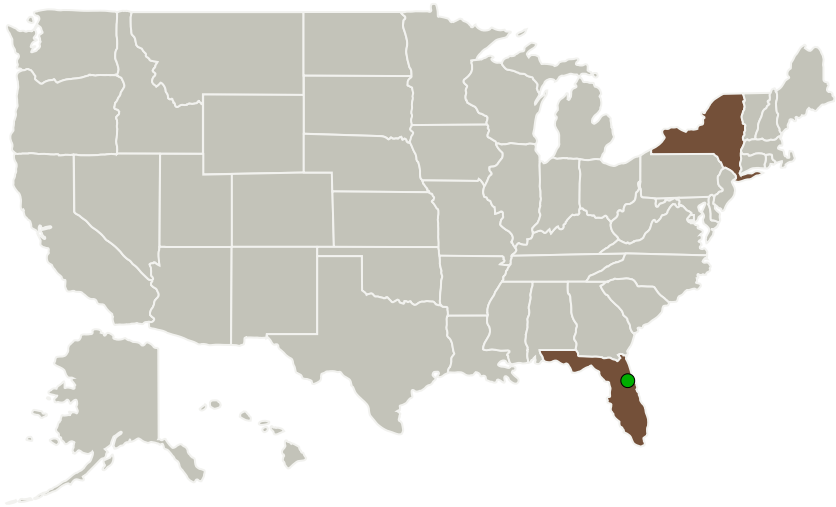
Free-Flying Unmanned Robotic Spacecraft for Asteroid Resource Prospecting and Characterization, Phase II

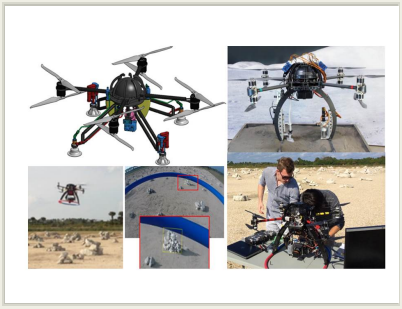
Completed Technology Project (2015 - 2019)

Project Introduction

In Phase 2 we will develop a fully integrated, autonomous free-flying robotic system based on a commercial SkyJib quadcopter, and demonstrate flying straight and level to a target location, acquisition of rock and regolith samples, and return to the point of origin. The work plan for Phase 2 is as follows: 1. Completion of the Guidance, Navigation, Control, Vision, and Sample Acquisition subsystems. 2. Integration of all the payload elements at ERAU and system level check out 3. Demonstration of the entire system at NASA KSC 4. Field deployment at analog location

Primary U.S. Work Locations and Key Partners





Free-Flying Unmanned Robotic Spacecraft for Asteroid Resource Prospecting and Characterization, Phase II Briefing Chart Image

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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Honeybee Robotics, Ltd.	Lead Organization	Industry	Pasadena, California
Embry-Riddle Aeronautical University-Daytona Beach	Supporting Organization	Academia	Daytona Beach, Florida
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
Florida	New York

Project Transitions

June 2015: Project Start

December 2019: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137678)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Honeybee Robotics, Ltd.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

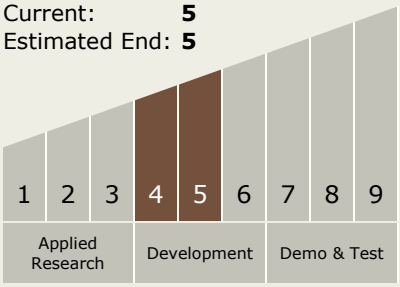
Carlos Torrez

Principal Investigator:

Hever Moncayo

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



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Images

Briefing Chart Image
Free-Flying Unmanned Robotic Spacecraft for Asteroid Resource Prospecting and Characterization, Phase II Briefing Chart Image *(https://techport.nasa.gov/image/129140)*

Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.2 Mobility
    - TX04.2.3 Small-Body and Microgravity Mobility

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System